

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 July 2005 (21.07.2005)

PCT

(10) International Publication Number
WO 2005/066100 A1

(51) International Patent Classification⁷: **C07B 59/00, A61K 51/00**

(21) International Application Number:
PCT/IB2004/004199

(22) International Filing Date:
20 December 2004 (20.12.2004)

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
60/532,606 24 December 2003 (24.12.2003) US

(71) Applicant (for all designated States except US): **GE HEALTHCARE LIMITED [GB/GB]; Amersham Place, Little Chalfont, Buckinghamshire HP7 9NA (GB).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RAHMAN,**

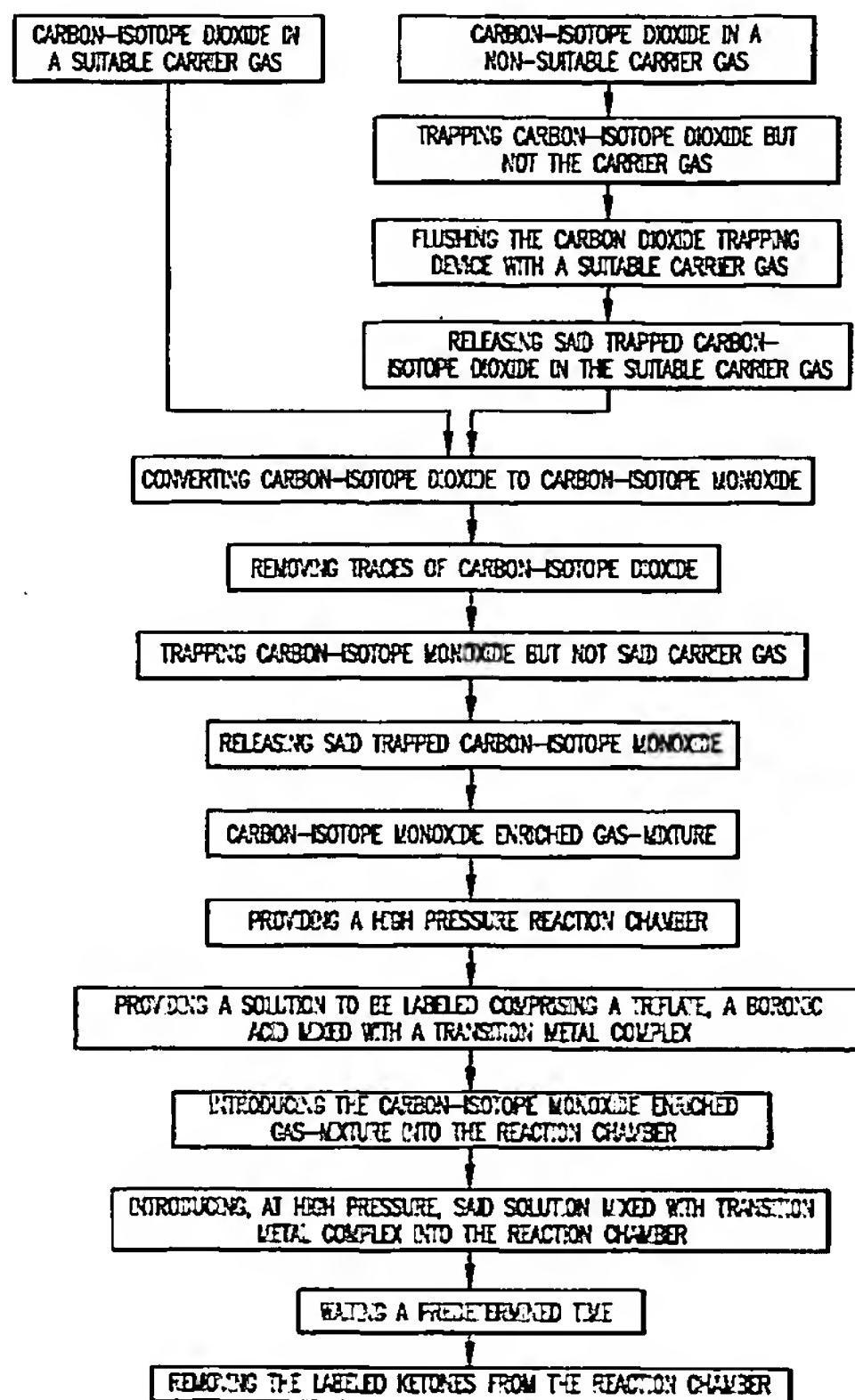
Obaidur [SE/SE]; Department of Organic Chemistry, Institute of Chemistry, BMC, Uppsala University, Thoirldsgatan 10, S-751 24 Uppsala (SE). LANGSTROM, Bengt [SE/SE]; Uppsala Research Imaging, Solutions AB, Akademiska sjukhuset, S-751-85 Uppsala (SE). KIHLBERG, Tor [SE/SE]; Uppsala Research Imaging, Solutions AB, Akademiska sjukhuset, S-751 85 Uppsala (SE). LLOP, Jordi [ES/ES]; Institut d'Alta Tecnologia, Parc de Recerca Biomedica de Barcelona, Edifici Hospital del Mar, Passeig, Maritim 25-59, E-08003 Barcelona (ES).

(74) Agents: **CAI, Li et al.; Amersham Health, Inc., 101 Carnegie Center, Princeton, NJ 08540 (US).**

(81) Designated States (unless otherwise indicated, for every kind of national protection available): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,**

[Continued on next page]

(54) Title: METHODS FOR CARBON ISOTOPE LABELING SYNTHESIS OF KETONES AND AMINES BY SUZUKI COUPLING REACTIONS USING CARBON-ISOTOPE MONOXIDE



(57) Abstract: Methods and reagents for synthesizing carbon-isotope labeled ketones and amines by carbonylation via Suzuki coupling reaction using carbon-isotope labeled carbon monoxide are provided. The resultant carbon-isotope labeled ketones and amines are useful as radiopharmaceuticals, especially for use in Positron Emission Tomography (PET). Associated kits for PET studies are also provided.

WO 2005/066100 A1



TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report*

- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.